

What is claimed is:

1. 1. A method for correcting for an echo signal component in a telecommunications device,
2 comprising the steps of:
3 sampling a transmitted signal across a sampling resistor;
4 subtracting the sampled transmitted signal from a received line signal to obtain a
5 reconstructed received signal;
6 sampling the transmitted signal across a first RC network echo compensation circuit to obtain
7 a first echo compensation signal; and
8 subtracting the first echo compensation signal from the received line signal to compensate
9 the reconstructed received signal.
1. 2. The method of claim 1, further comprising the steps of:
2 sampling the transmitted signal across a second RC network echo compensation circuit to
3 obtain a second echo compensation signal; and
4 subtracting the second echo compensation signal from the received line signal to compensate
5 the reconstructed received signal.
1. 3. The method of claim 1, further comprising the steps of:
2 sampling a second transmitted signal across a second sampling resistor;
3 subtracting the second sampled transmitted signal from a second received line signal to
4 obtain a second reconstructed received signal;
5 sampling the second transmitted signal across a second RC network echo compensation

6 circuit to obtain a second echo compensation signal; and
7 subtracting the second echo compensation signal from the second received line signal to
8 compensate the second reconstructed received signal.

1 4. The method of claim 3, further comprising the steps of:
2 sampling the transmitted signal across a third RC network echo compensation circuit to
3 obtain a third echo compensation signal;
4 subtracting the third echo compensation signal from the second received line signal to
5 compensate the second reconstructed received signal;
6 sampling the second transmitted signal across a fourth RC network echo compensation circuit
7 to obtain a fourth echo compensation signal; and
8 subtracting the fourth echo compensation signal from the received line signal to compensate
9 the reconstructed received signal.

1 5. An apparatus for compensating for echo signal in a telecommunications device comprising:
2 a transmitter having an output;
3 a receiver having an input;
4 a line transformer coupled to the transmitter output and the receiver input; and
5 an echo compensation circuit including a first circuit branch coupled to the transmitter output
6 and the receiver input and a second circuit branch coupled to the transmitter output and the receiver
7 input.

1 6. The apparatus according to claim 5, wherein:
2 the first circuit branch further comprises a first resistor and a first capacitor connected in
3 series; and
4 the second circuit branch further comprises a second resistor and a second capacitor
5 connected in series.

1 7. The apparatus according to claim 6, further comprising
2 a second transmitter having an output;
3 a second receiver having an input; and
4 a second echo compensation circuit including a third circuit branch coupled to the second
5 transmitter output and the second receiver input and a fourth circuit branch coupled to the transmitter
6 output,
7 wherein the line transformer is coupled to the second transmitter output and the second
8 receiver input; and
9 wherein the second circuit branch is coupled to the transmitter output and the second receiver
10 input.

1 8. The apparatus according to claim 7, wherein:
2 the third circuit branch further comprises a third resistor and a third capacitor connected in
3 series; and
4 the fourth circuit branch further comprises a fourth resistor and a fourth capacitor connected
5 in series.

1 9. An apparatus for compensating for echo signal in a telecommunications device comprising:

2 a first differential transmitter having an output terminal coupled to a first transmitted signal

3 node;

4 a second differential transmitter having an output terminal coupled to a second transmitted

5 signal node;

6 a first current limiting resistor having a first terminal coupled to the first transmitted signal

7 node and a second terminal coupled to a first line transformer node;

8 a second current limiting resistor having a first terminal coupled to the second transmitted

9 signal node and a second terminal coupled to a second line transformer node;

10 a first sampling resistor having a first terminal coupled to the first line transformer node and

11 a second terminal connected to a first received signal node;

12 a second sampling resistor having a first terminal coupled to the second line transformer node

13 and a second terminal connected to a second received signal node;

14 a first compensation circuit having a first terminal coupled to the first transmitted signal node

15 and a second terminal coupled to the first received signal node;

16 a second compensation circuit having a first terminal coupled to the first transmitted signal

17 node and a second terminal coupled to the second received signal node;

18 a third compensation circuit having a first terminal coupled to the second transmitted signal

19 node and a second terminal coupled to the second received signal node; and

20 a fourth compensation circuit having a first terminal coupled to the second transmitted signal

21 node and a second terminal coupled to the first received signal node.

1 10. An apparatus for compensating for echo signal in a telecommunications device according to
2 claim 9 wherein,

3 the first compensation circuit further comprises a first compensation resistor and a first
4 compensation capacitor connected in series;

the second compensation circuit further comprises a second compensation resistor and a
second compensation capacitor connected in series;

the third compensation circuit further comprises a third compensation resistor and a third compensation capacitor connected in series; and

the fourth compensation circuit further comprises a fourth compensation resistor and a fourth compensation capacitor connected in series.

1 11. An apparatus for compensating for echo signal in a telecommunications device according to
2 claim 9 wherein,

the first terminal of the first sampling resistor is coupled to the first transmitted signal node;

4 and
5 the first terminal of the second sampling resistor is coupled to the second transmitted signal
6 node